

7 [said gas inlet manifold comprising a second RF electrode;]
8 a plasma power source for forming a plasma within the reaction zone of said
9 deposition chamber; and
10 *ant* an impedance monitor electrically coupled to the deposition chamber to
11 measure an impedance level of said plasma.

1 2. (UNCHANGED) The substrate processing system of claim 1 wherein said
2 substrate holder comprises a first RF electrode, and wherein said gas distribution system
3 includes a gas inlet manifold that comprises a second RF electrode.

1 3. (UNCHANGED) The substrate processing system of claim 1 further
2 comprising a computer processor communicatively coupled to said impedance monitor so that
3 said computer processor receives as an input the measured impedance level of said plasma.

1 4. (AMENDED) The substrate processing system of claim 3 further comprising
2 a variable capacitor electrically coupled to said chamber and controllably coupled to said
3 processor wherein said processor adjusts a capacitance level of said variable capacitor to vary
4 *AR* the impedance of said plasma in response to [the measured impedance level of said plasma] an
5 output of said impedance monitor.

1 5. (UNCHANGED) The substrate processing system of claim 3 further
2 comprising a pressure control system configured to control a pressure level within said
3 chamber and controllably coupled to said processor wherein said processor controls said
4 pressure control system to vary the pressure within the chamber in response to the measured
5 impedance level of said plasma.

1 6. (UNCHANGED) The substrate processing system of claim 3 wherein said
2 processor controls said plasma power source to vary the power applied to the plasma in
3 response to the measured impedance level of said plasma.

- 7. RESTRICTION REQUIREMENT.
- 8. RESTRICTION REQUIREMENT.
- 9. RESTRICTION REQUIREMENT.

10. RESTRICTION REQUIREMENT.

Please add new claims 11-18 as follows.

1 --11. (NEW) A substrate processing system comprising:
2 a deposition chamber comprising a reaction zone;
3 a substrate holder that positions a substrate in the reaction zone;
4 said substrate holder comprising a low frequency (LF) electrode;
5 a gas distribution system that includes a gas inlet manifold for supplying one or
6 more process gases to said reaction zone;
7 said gas inlet manifold comprising a high frequency (HF) electrode;
8 a plasma power source for forming a plasma within the reaction zone of said
9 deposition chamber; and
10 an impedance monitor electrically coupled to said high frequency electrode and
11 said low frequency electrode.

1 12. (NEW) The substrate processing system of claim 11 further comprising a
2 variable capacitor electrically coupled to said LF electrode and controllably coupled to said
3 processor wherein said processor adjusts a capacitance level of said variable capacitor to vary
4 the impedance of said plasma in response to an output of said impedance monitor.

1 13. (NEW) The substrate processing system of claim 11 further comprising a
2 variable capacitor coupled in series to said pedestal.

1 14. (NEW) The substrate processing system of claim 13 wherein said
2 variable capacitor is coupled between said pedestal and a low frequency RF generator.

1 15. (NEW) The substrate processing system of claim 14 further comprising a
2 matching network coupled between said low frequency RF generator and said variable
3 capacitor, wherein said matching network includes capacitors that are different than said
4 variable capacitor.

1 16. (NEW) The substrate processing system of claim 14 further comprising a
2 matching network coupled to a high frequency RF generator and said gas manifold, wherein
3 said matching network has capacitors that are different than said variable capacitor.

1 17. (NEW) A substrate processing system comprising:
2 means for introducing one or more process gases into a reaction zone of a
3 substrate processing chamber;
4 means for forming a plasma from said one or more process gases;
5 means for maintaining the reaction zone at deposition conditions suitable to
6 deposit a layer from said one or more process gases;
7 means for monitoring an impedance level of said plasma; and
8 means for adjusting deposition conditions in the reaction zone in response to
9 said impedance level.

1 18. (NEW) A means for depositing a film as set forth in claim 17 wherein
2 said means for adjusting deposition conditions comprises a variable capacitor electrically
3 coupled to said processing chamber.--

REMARKS

Claims 11-18 have been added; and claims 1-6 remain unchanged. Thus, claims 1-6 and 11- are pending.

Claims 1-4 and 6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Robertson et al. in view of E. van de Van et al, and Patrick et al. (U.S. Patent No. 5,474,648).

Claim 5 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Robertson et al. and further in view of Boys et al.

As amended, all the pending claims of the subject application comply with all requirements of 35 U.S.C. Accordingly, Applicant requests examination and allowance of all pending claims.